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A Method of Performing Rapid
Manual Dilatation of the Os
Uteri, and its Advanta-
ges in the Treatment
of Placenta Previa

BY

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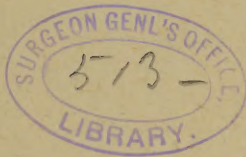
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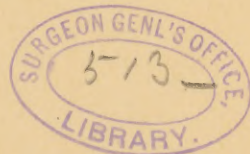
A METHOD OF PERFORMING RAPID MANUAL DILATATION
OF THE OS UTERI, AND ITS ADVANTAGES IN THE
TREATMENT OF PLACENTA PREVIA.¹

I wish to engage your attention with the description of a manual method of effecting rapid and very extensive dilatation of the os uteri for parturient purposes. So far as I am aware, the method I shall endeavor to illustrate has not been described or practised by others. I have asked a number of professional friends to explain or exemplify their conceptions of manual dilatation of the os in parturition. From none of them have I obtained the slightest reference to my method or any part of it. The forcible introduction of the conated hand, or the separation of introduced fingers, about covers all that I have learned from my friends or from obstetrical writers.

The employment of rapid manual dilatation must be restricted to cases of advanced pregnancy where, for any reason, it is desired to effect prompt delivery. Its use presupposes the possibility of the full introduction of the index finger to its largest diameter without much delay or difficulty. If, with the patient anesthetized, the index finger cannot in a very few minutes be fully introduced, I should seriously doubt the possibility of a successful employment of this or any other manual method of dilatation, and should advise the operator, for the time at least, to cease further attempt.

My experience with the method of manual dilatation about to be described is derived from its employment in seven cases of placenta previa, six cases of crossed birth, and two of eclampsia. In six instances, all of which were placenta previa, there had been no labor pains, although a hemorrhage had in each instance preceded the employment of manual dilatation and consequent delivery of child. It is possible that the very hemorrhage which

¹ Read before the Section on Obstetrics, Pan-American Medical Congress.



prompted me to effect immediate delivery was in itself an aiding factor in its speedy accomplishment.

An extensive obstetrical experience convinces me that while the previous occurrence of hemorrhage and the particular location of the placenta may have made dilatation more easily possible, its influence in that relation was far from being a considerable one, and I am consequently left with the conviction that, after all, the undilated, unlabored os of normal pregnancy may not prove very much more obdurate and unyielding than the undilated, unlabored os of placenta previa. If a woman at or after the seventh month of utero-gestation (not in labor) be anesthetized with ether or chloroform, I believe it will often



FIG. 1.

FIG. 1.—Position of fingers in the beginning of manual or digital dilatation of the cervix uteri—first position.

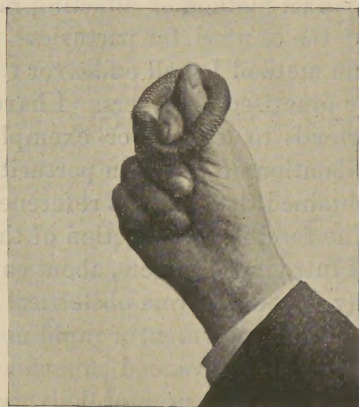


FIG. 2.

FIG. 2.—Showing the limit of dilatation in the first position.

be found an easy task to insert the index finger to its largest diameter, the hand having followed in the vagina. If the finger now be withdrawn, so that its tip merely enters the os, it will usually be found possible to introduce alongside the tip of the thumb. When the tips of both index finger and thumb are thus within the ring, and the second finger sharply flexed, with the os resting on its palmar and inner latero-dorsal aspect, we have but to keep the index and second fingers close together to form a notch, from which the os-uterine ring cannot easily escape. For purposes of description and reference I will call this the first position for manual—or what might perhaps be more cor-

rectly termed *digital*—dilatation. The straightened and extended thumb, resting on the outer lateral side of the index finger, is now carried as far from the tip of the index finger as the enlargement of the os will permit. Considerable power for dilatation may indeed be exerted by continuing this movement of the thumb, but a much greater and far less fatiguing force may be exerted if we implant and immovably hold the thumb on the index finger whilst forcibly and together flexing the index and second fingers. When a little headway has been thus gained, we slightly extend the index and second fingers, which will permit the extended thumb to travel further from the tip of the index finger, at which point we again press and hold the ex-

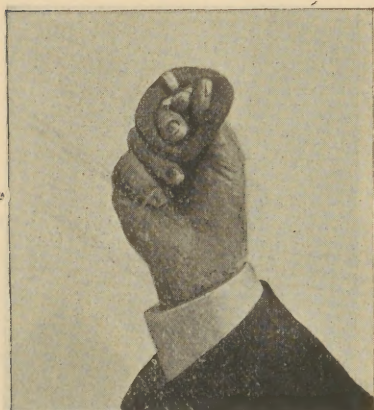


FIG. 3.

FIG. 3—Second position.



FIG. 4.

FIG. 4.—Showing the limit of dilatation in the second position.

tended thumb firmly against the outer side of the index finger. In this position the holding point is again taken, whilst tonic flexion of the index and second fingers continues the work of dilatation.

After a while the fingers are again slightly extended, which will permit the thumb to be carried still further toward the metacarpo-phalangeal articulation. Whilst holding it firmly on the index finger, flexion of the index and second fingers should be renewed. If tonic flexion of the fingers has been steadily maintained we shall now be able to introduce the index and second fingers and thumb. This I will term the *second position*.

The relation of the extended thumb to the first finger is maintained as in the *first position*, whilst the os, encircling the thumb and also the two fingers, rests upon the dorsal surface of the more sharply flexed third finger, in the same manner as it rested on the second finger in the first position. The power for stretching, too, is derived from fixation of thumb on first finger, whilst counter-pressure is effected by flexing the index, second, and third fingers in the manner described for the first position. In a short time we shall have dilated sufficiently to permit the introduction of the third finger, which will constitute the *third position*. The os, still hooked over the tip of the extended thumb, will now have its point of counter-pressure

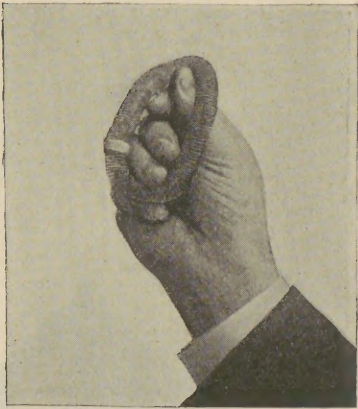


FIG. 5.

FIG. 5.—Third position.

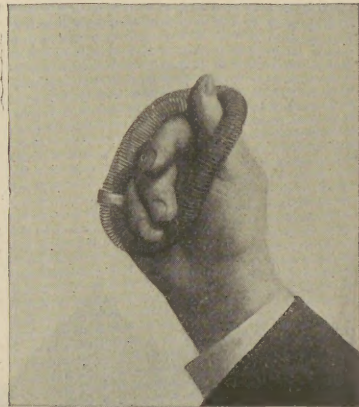


FIG. 6.

FIG. 6.—Limit of dilatation in the third position.

between the third finger and the inner latero-dorsal aspect of the fourth finger. Again we resort to tonic flexion of all the fingers, and take up the gain by occasional slight extension of the fingers and movement of the extended thumb toward the metacarpo-phalangeal articulation. We shall soon be ready for the introduction of the thumb and all the fingers, thus entering the fourth position. Here again the enlargement is effected by flexion of all the fingers, although the index and second will be flexed far less than the third and fourth fingers.

The limit of dilatation in the fourth position for a hand measuring seven and three-quarter inches over the metacarpo

phalangeal articulation (as measured for gloves) is eight and a half inches (circumferential measurement).

The extreme limit of possible and easy dilatation in the fourth position will not exceed the glove measurement more than one inch, which is scarcely sufficient for the easy introduction of the whole hand. I then resort to the *fifth position*, in which the os is made to encircle the first row of phalangeal bones of the fingers and the second or last phalanx of the thumb. The movement required in this position is extension of the thumb and all the fingers, the tips of the fingers being at the same time flexed to lessen their encroachment on the intra-uterine space. A less fatiguing and somewhat more powerful



FIG. 7.

FIG. 7.—Fourth position.



FIG. 8.

FIG. 8.—Limit of dilatation in the fourth position.

dilating manipulation is the *sixth* and last position, which is effected by causing the os to encircle the second row of phalangeal bones of the fingers and the first phalanx of the thumb.

In either the fifth or sixth position the degree of circumferential dilatation possible will exceed the glove measurement by at least three inches. This, of course, is a much greater enlargement than is required for the introduction of the hands into the uterus.

When the tips of first finger and thumb are in the *first position* for dilatation, the very slightly enlarged os will feel like an inelastic ring, and the tissues composing it will approximate in

size the coil of wire which I have formed into the ring with which I illustrate the positions and movements in each position.¹

During all of these manipulatory movements of the thumb and fingers the hand reposes in the vagina, and so quietly, indeed, that, if the work is properly performed, bystanders will scarcely observe any appreciable movement of the wrist at the vulva. There is neither call for dragging down, nor pushing upward of the os; it is dilated *in situ*, whilst the encroachment on the intra-uterine space, as you may have observed, is reduced to a minimum by flexure of the tips of the fingers in all the stages of every position. Any normal hand should endure the fatigue consequent on the accomplishment of rapid dilatation, if dilata-

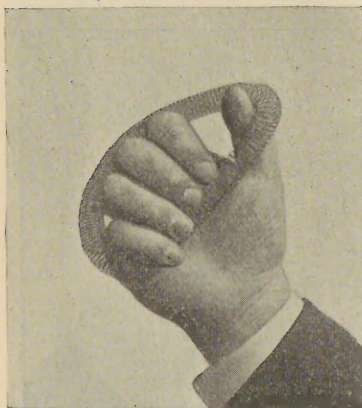


FIG. 9.—Fifth position.

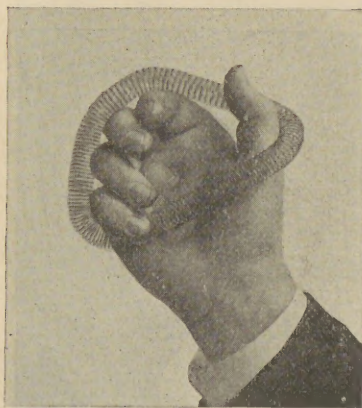


FIG. 10.—Sixth position.

tion is possible. Having once failed to accomplish rapid dilatation, probably owing to my inability to easily and fully introduce the first finger, I desire to again remind you that in any such case it may not be possible to effect dilatation by this method.

Eleven years ago the late Dr. James C. Amiraux asked me to hasten to his aid, stating in his note that he was in attendance upon a case of placenta previa, and that he greatly feared the patient would die of hemorrhage. When I reached the patient's house the doctor informed me that the woman had been seized the day before with hemorrhage, for which he had already twice tamponed her, permitting the second tampon to remain until my arrival. Upon its removal we found the vertex and a margin

¹ The diameter of the coil forming the ring was about half an inch.

of the placenta presenting through a well-dilated os; the patient was almost pulseless, complained of thirst, and was so generally weak that we momentarily feared her death. The forceps was applied and the very rapid delivery of a living child effected, after which the liberal use of brandy and hot applications accomplished an improvement in our patient's condition which eventuated in recovery.

This was my first experience with placenta previa. Previous to that I had discovered the ease with which the gravid uterus at or near term could be manually dilated under anesthesia in the manner described, and I then resolved to try manual dilatation in place of the tampon, should I at any time meet with the undilated os of placenta previa. I had not long to wait, for just one year later I was called to see

CASE II., a primipara, English, æt. 24. Upon retiring at night, and without pains of any kind, she was taken with a most profuse flooding. I reached her house about one hour after its occurrence. She was still rapidly flowing; there were no pains; the os admitted the index finger. With the assistance of Dr. Amiraux I anesthetized the patient, and at once began manual dilatation of the os. In twenty-one minutes my hand entered the uterus, a foot was brought down, and in twenty-eight minutes more, or in forty-nine minutes from the beginning of dilatation, a still-born child and placenta came together. The woman recovered without fever or embarrassment of any kind.

CASE III.—Mrs. S., IIIpara, æt. 30, had a slight hemorrhage at the seventh month, for which, I think, no medical advice was obtained. At the eighth month a very profuse flowing occurred, but no pains. The os readily admitted the index finger, which revealed placenta previa. Dr. James W. Smith confirmed my diagnosis, and, after he had administered ether, I manually dilated the os and introduced my hand in twenty minutes. The membranes were ruptured, one foot brought down, and the child and placenta were delivered in forty-five minutes from the beginning of dilatation. The child was still-born. The mother recovered, although not without a degree of puerperal fever, which was probably due to our inability to overcome the dangers of the unsanitary surroundings.

CASE IV.—Mrs. S. (the same woman as Case 3) two years later sent for me at midnight. She had been sleeping about

two hours and was awakened by a pool of blood in her bed. Utero-gestation had probably advanced to seven and a half months. I saw her within an hour from the time she awakened. No labor pains had been experienced; the os rather tardily admitted the index finger. In a very short time Drs. James W. Smith and Millspaugh were kindly with me. The patient was etherized, and manual dilatation effected sufficient enlargement of the os to admit the hand in sixteen minutes. In twenty-four minutes more a still-born child and the placenta were delivered. The patient made a rapid and uneventful recovery.

CASE V.—Mrs. C., IVpara, æt. 30, was taken at the eighth month with a rather profuse flowing. I saw her six hours later at the request of her physician, Dr. Edward W. Doty, who informed me of the presence of placenta previa, and also assured me that the os would scarcely admit one finger. She had had no pains. Upon my assurance that delivery could be at once effected, ether was procured, the patient anesthetized, and manual dilatation begun. The hand entered the uterus in twenty-two minutes, one foot was brought down, and a living child (which still lives) and the placenta were delivered in twenty-two minutes more. The mother's convalescence was normal and complete.

CASE VI.—German, IVpara, æt. 30, was taken with slight labor pains, which in six hours were attended with quite a profuse hemorrhage. When Dr. D. T. Bowden was called I went to the doctor's assistance, six hours after his first visit, and confirmed his diagnosis of placenta previa. There were only occasional pains, the hemorrhage continued, and the os would scarcely admit two fingers. I assured the doctor of my ability to quickly enlarge the os. With his consent the patient was anesthetized and manual dilatation begun. In twenty minutes my hand entered the uterus, ruptured the membranes, and brought down one foot. In twenty-five minutes more she was delivered of a still-born child and the placenta. No hemorrhage followed, and convalescence was normal.

CASE VII.—German, VIpara, æt. 43, at eight and a half months of utero-gestation was taken with rather profuse and continuous flooding. The house was so cold and unsanitary that I at once removed patient to the Paterson General Hospital. On the way and after entering the hospital she had a few very slight pains and a great deal of flowing. The os was

dilated sufficiently to almost admit two fingers. With the aid of house physicians Drs. McCoy and Fuentes, who anesthetized the patient, I made manual dilatation of the os. In eighteen minutes my hand entered the uterus, ruptured the membranes, and brought down one foot. In thirty-two minutes more a still-born child and the placenta were delivered. The patient recovered without fever or embarrassment.

CASE VIII.—German, Vpara, æt. 34, was seized with hemorrhage at eight and a half months. The flowing was free and continuous and not accompanied by labor pains. This case was seen at the request of and with Dr. William Fliteroft, and was also, for sanitary reasons, removed to the Paterson General Hospital. She reached the hospital about six hours after the occurrence of hemorrhage, complaining of pain in her back, but did not seem to have any regular labor pains. She was still bleeding and the os admitted three fingers. After a brief consultation with Dr. William K. Newton, my alternate in the obstetrical service at this hospital, the patient was anesthetized and he completed the work of dilatation with conated hand, introduced hand, brought down one foot, and delivered a living child and the placenta in about twenty-five minutes from the time of dilatation. The patient was discharged from the hospital in about two weeks.

CASE IX.—German, IIIpara, æt. 36. Seen with Dr. B. C. Magennis about three hours after the occurrence of hemorrhage. The os admitted but the tip of the index finger. Not having hitherto failed to effect rapid manual dilatation, I advised that we proceed at once to effect delivery. The patient was anesthetized, and at the end of fifty minutes I suffered the embarrassment of announcing my inability to introduce the tips of index finger and thumb. Hemorrhage had ceased, and I advised a delay of one week, unless the occurrence of hemorrhage or other important symptoms called for interference. Vaginal douches of boracic acid solution were given twice daily. On the second day following the unsuccessful attempt at delivery the patient was removed to a private room in the Paterson General Hospital. In just six days from the occurrence of the first flooding a second slight but continuous hemorrhage occurred. There were no labor pains. The os was now found to admit the tip of the finger with greater facility than at the time of the first hemorrhage. We introduced one of the smallest of

Barnes' fiddle-shaped rubber bags and inflated with water by means of a piston syringe of known capacity. At the end of one hour it was emptied, removed, and replaced with one of the largest size. This was filled with water, and at the end of one hour the patient was anesthetized and removed to the operating room. Upon removal of the Barnes dilator the os admitted two fingers. Dr. Magennis began manual dilatation by my method. I concluded dilatation in twenty-two minutes from the removal of the Barnes dilator, introduced hand, ruptured membranes, brought down one foot, and effected the delivery of a still-born child and the placenta in fifty-five minutes from the time of beginning manual dilatation. The patient made a normal and uneventful recovery.

These nine cases cover my entire experience in the management of placenta previa. All of the mothers recovered and three of the children lived. In eight cases manual dilatation of the os was practised to the extent of admitting the hand and effecting podalic version. In only seven cases was my method of dilatation employed.

The shortest time required to dilate the os from the easy insertion of index finger to introduction of hand was sixteen minutes. The longest time was twenty-two minutes.

The average time to dilate from one or two fingers to the whole hand, for the seven cases of this class, was nineteen and six-sevenths minutes.

The addition of the case operated by Dr. Newton, in which dilatation from *three* fingers to full hand was effected in fifteen minutes, will lessen somewhat the average time for dilatation in the eight cases.

The beginning of dilatation in Case 9 with Barnes' bags occupied two hours. This time does not figure in the above averages. I have little doubt that this case was ready for manual dilatation at the time of removing the smallest bag, or in one hour from its introduction.

The very short time required in any of the other cases to fully introduce the index finger or its equivalent, the tips of index finger and thumb, is included in the figures from which the averages are taken, so that in each of the cases of manual dilatation the time given begins at the first touch of patient and ends with the bringing-down of one foot.

The withdrawal of the anesthetic immediately after the per-

formance of version usually enabled Nature to quickly complete the delivery with the aid of slight traction upon the foot or leg; for almost as soon as the anesthetic is withdrawn labor pains begin, and in a very short time they become both active and propulsive.

Now as to the time required for the completion of the second and third stages of labor. In the eight cases the placenta either came with, or so quickly followed the delivery of the head in each instance that the actual time of the so-called third stage was almost too short to admit of computation.

The shortest time required to complete labor, after beginning to turn, was ten minutes. The longest time was thirty-three minutes. The average time for the eight cases was twenty-five and one-eighth minutes.

The shortest time for dilatation of the os, the performance of version, and completion of delivery in any one case was twenty-five minutes. The longest time was fifty-five minutes.

The average time for the eight cases was forty-one minutes. All of the mothers recovered and two out of the eight children lived.

In five cases not a single labor pain occurred previous to rupture of membranes and the performance of version. The delivery was in each of these cases purely an elective operation. Two cases had a few very slight and unpronounced pains.

The remaining one of this class of eight cases had been in actual labor twelve or thirteen hours, with an almost continuous flow for seven hours. In every instance hemorrhage ceased or was brought under control by dragging down the foot after turning. There was not a single instance of post-partum hemorrhage to remind me of cervical laceration.

One would suppose that such rapid dilatation of the os would of necessity have brought on dangerous hemorrhage or very greatly increased the flow from placental detachment. It is interesting to note that the amount of blood lost during manual dilatation was in no case sufficient to cause special anxiety or alarm.

I wish again to remind you that this method of dilatation should be effected with comparatively little encroachment on the intra-uterine space, and, if properly performed, we shall limit the area of placental detachment, and consequently the

hemorrhage, until the membranes have been ruptured and the leg brought down.

The extremely unsanitary surroundings of four houses and my inability to satisfactorily mend these made me gravely apprehensive of septicemia.

In one instance (Case 3) my fears were in a measure realized. I need scarcely say that surgical cleansing of the hands, vulva, and vagina before operation, and, in some cases, irrigation of vagina, and of uterus also, with sterilized water after delivery, was practised with as much care as circumstances would permit.

The very brilliant achievements of Richard Lomer, Hofmeier, and Behn in the management of placenta previa by the Braxton Hicks method of bimanual version would seem to leave no room for improvement. I have not pursued a somewhat different practice with the expectancy of affording better results than were obtained by these gentlemen. As a matter of fact, my first two cases were operated before the publication of the practical and masterly report of Richard Lomer in *THE AMERICAN JOURNAL OF OBSTETRICS*. Stimulated with the satisfactory results in these two cases, I continued my practice without modification and with the very gratifying results here given. To some extent many others have no doubt, in one way or another, effected the introduction of the hand into the uterus in placenta previa, performed podalic version and consequently delivery.

Some—doubtless with knowledge of the Braxton Hicks method—have thus modified his treatment, but I am not aware that any one has induced labor and at the same time accomplished extensive dilatation of the os with such great rapidity nor with anything like the uniformity of result attained in the few cases here presented.

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